Staying On Track

NBQA

Executive Summary of the 2005 National Beef Quality Audit

2005

BEEF

Funded by The Beef Checkoff

"...improved beef quality has a positive impact on beef demand and a positive effect on our bottom line."

Beef Quality Assurance

Dear Fellow Producers,

We are all part of an industry going through significant changes. In this environment it's easy to get distracted from factors important to the end product as well as overall profitability.

Staying on track can be a difficult proposition in this ever-changing environment.

Results from the 2005 National Beef Quality Audit prove cattle producers are doing things right to improve overall beef quality. Furthermore, findings support the idea that improved beef quality has a positive impact on beef demand and a positive effect on our bottom line.

The results of this Audit provide a snapshot of the industry's quality status at the time the Audit was conducted. The 2005 National Beef Quality Audit will serve as an important benchmarking tool for the industry's quality improvement strategy over the next 15 years.

The Beef Quality Assurance educational program will especially utilize the findings of the 2005 National Beef Quality Audit. BQA programs are active in 47 states, and certify trained producers in quality pre-harvest practices. This information will serve as the basis for these programs over the years to come.

Staying on track and maintaining the momentum is vital to our industry and results of the 2005 National Beef Quality Audit give us the tools that make this possible.

Sincerely,

Ran Smith, DVM, Chairman
Beef Quality Assurance Advisory Board

GOAL

2005 National Beef Quality Audit

To identify those quality challenges upon which Beef Quality Assurance educational efforts should focus during the next five years.

To achieve this goal, we will:

Conduct the sequel *to the National Beef Quality Audits of 1991, 1995 and 2000, of fed slaughter cattle (their carcasses and dress-off/offal items) for the U.S. beef industry, in 2005, establishing a new benchmark for quality* shortfalls and identifying targets for desired quality levels by the year 2015.*

Obtain information – *from seedstock generators, cow-calf producers, stockers/backgrounders and feedlot operators, via use of questionnaires – related to the "Top-Ten Quality Problems Facing The Beef Industry" and "Changes Made Since 1991, 1995 And/Or 2000 In Genetic And/Or Management Practices."*

Obtain information – *from packers, purveyors, foodservice operators, restaurateurs, and/or supermarket operators, via use of questionnaires, telephone interviews and personal contacts – related to the "Top-Ten Quality Problems Facing The Beef Industry," "Areas In Which Industry Has Made The Most, And The Least, Quality Improvements Since 1991, 1995 And/Or 2000," "Ideal Consist of USDA Quality Grades and Yield Grades" and "Beef Quality Concerns That Are Important To Beef Industry Stakeholders, Beef Customers And Beef Consumers."*
Key beef packing company personnel in charge of exporting and/or distributing beef products to international markets will contribute to identification of "Beef Quality Concerns Of Those Who Trade Beef To Global Export Markets."

Characterize and quantify – *numerically and monetarily – quality defects in U.S. fed slaughter cattle, their carcasses and their dress-off/offal items, using data provided by AMS-USDA, FSIS-USDA and the U.S. beef packing industry as well as data collected from audits of the representative number of U.S. fed-beef packing facilities.*

Determine the footage *of supermarket retail case-space assigned to fresh beef vs. fresh pork and fresh chicken in at least five major metropolitan areas.*

Compare results *of the 1991, 1995 and 2000 Audits to those of the 2005 Audit to determine the extent to which changes have been made in, and by, the U.S. beef industry in response to the challenges and opportunities for change that were made evident by the results of the previous NBQAs.*

Identify those quality challenges *upon which local, state, regional and national Beef Quality Assurance educational efforts should focus during the next five years (2006 through 2010).*

*In this context, "quality" includes all factors affecting value-desirability of fed slaughter cattle, of their carcasses, and of their dress-off/offal items.

Introduction & History

"The intention... was to establish a new benchmark for shortfalls in beef quality and identify new targets for desired quality levels."

The 2005 National Beef Quality Audit, conducted between July 2005 and June 2006, serves as a sequel to similar audits conducted in 1991, 1995 and 2000. The intention of this fourth effort was to establish a new benchmark for shortfalls in beef cattle quality and identify new targets for desired quality levels. This benchmark would be used as a tool in creating Beef Quality Assurance educational efforts through 2010.

Those who created and commissioned this and other Audits recognized the U.S. beef industry cannot manage its quality problems until it can measure them. Furthermore, the U.S. beef industry cannot expect improvements in prices for its products or byproducts if the quality it delivers doesn't warrant those increases.

The audits are not all-encompassing research that is the final word on beef quality for producers. Still, they provide valuable snapshots of the industry and its quality challenges at a certain point in time. The first Audit in 1991 established the first benchmark, and determined monetary losses due to quality defects and management shortfalls. Having this information helped give direction to producers as they sought to address those challenges over the next 10 years. Subsequent Audits assessed the changes that had occurred.

The first Audit in 1991 demonstrated that U.S. beef was too fat, too tough and too inconsistent to be competitive with pork and poultry in the marketplace. It identified specific losses due to these factors and suggested ways improvement could be achieved.

Specifically, the Audit report determined that a total of $279.82 was left on the table due to waste (fat and muscling), taste (palatability, marbling, maturity and gender), management (hide defects, carcass and liver pathology, tongue infection, injection sites, bruises, dark cutters, grubs, blood splash, calloused ribeyes and yellow fat) and carcass weight. Producers could assess their role and possible attention to each of these areas, and develop strategies that could address them with a view to the effect on consumer demand, the level of importance to customers and the overall impact on their own bottom lines.

The 1995 audit helped provide evidence of factors in which producers were beginning to move the needle – and in which direction. The third audit, in 2000, suggested that U.S. beef producers had made progress in helping improve beef quality in several areas, including injection site lesions, herd health and managing genetics for reduction of fat.

In fact, Injection Sites, which was the number 2 concern of purveyors, restaurateurs and retailers in 1991, wasn't even in the top-10 in the 2000 Audit (Table 1).

Based on the 2000 Audit, producers were indeed making dramatic – and measurable – impact on the losses due to management and defects. Using 2000 Logic/Prices, there was a 22.8 percent improvement ($30.96) from 1995 to 2000 in value-losses due to Waste, Taste, Management and Weight Concerns (Table 2).

The rationale and goal for the 2005 Audit, however, changed from these previous efforts. While 2005 Audit results were again compared to those of previous years, the effort was especially designed with the objective of providing future direction for Beef Quality Assurance educational activities. Though they will change, there will always be a "top-10 concerns" list for those purchasing beef. The new benchmark will help the U.S. beef industry "stay on track" as it seeks to improve the consistency and competitiveness of U.S. fed beef.

Table 1. **The challenge of injection sites, which ranked #2 in 1991, dropped out of the top-10 aggregated concerns of purveyors, restaurateurs and retailers by 2000.**

NBQA—1991	NBQA—1995	NBQA—2000
(1) External Fat	(1) Overall Uniformity	(1) Marbling
(2) Injection-Sites	*(2) Tenderness	(2) Overall Uniformity
(3) Ribeye Size	(3) Overall Palatability	(3) Tenderness
(3) Carcass Weights	(4) External Fat	(4) External Fat
(5) Seam Fat	*(5) Price vs. Value	(5) Flavor
(6) Overall Uniformity	*(6) Flavor	(6) Carcass Weights
(7) Overall Cutability	(7) Carcass Weights	*(7) Ribeye Size
(8) Dark Cutters	*(8) Quality Grade Mix	(8) Overall Cutability
(9) Overall Palatability	(9) Injection-Sites	*(9) Juiciness
(10) Bruise Damage	(10) Overall Cutability	(10) Overall Palatability

**Not in immediately previous NBQA.*

Table 2. **The three previous NBQA created benchmarks for quality value challenges/losses to the beef industry.**

	Using 1991 Logic/Prices			Using 2000 Logic/Prices	
	NBQA—1991	**NBQA—1995**	**NBQA—2000**	**NBQA—1995**	**NBQA—2000**
Waste	$219.25	$203.38	$207.90	$47.76	$43.41
Taste	28.81	36.10	21.85	38.30	23.14
Management	27.26	32.98	35.45	45.16	40.14
Weight	4.50	4.13	6.07	4.66	8.23
TOTAL	**$279.82**	**$276.59**	**$271.27**	**$135.88**	**$104.92**

"The National Beef Quality Audit provides valuable information to industry stakeholders regarding the monetary consequences of not truly delivering the quality and value to our consumers."
Terry Stokes, CEO, National Cattlemen's Beef Association

Methodologies & Protocol

Phase I of the Audit included a series of questionnaires, telephone interviews and personal contacts with all segments of the beef industry. The information gathered in this phase related to the top-10 quality problems facing the industry, and the changes made since the previous audits were conducted.

Carcass weight has increased from about 713 pounds in 1989 to 769 pounds in 2005.

Completed questionnaires were received from 392 producers in 13 states. Completed questionnaires were also received from six packers, eight purveyors, six retailers and 12 restaurateurs by the time of Phase III.

Both qualitative and quantitative information was also gathered through face-to-face interviews with officials of various government agencies and industry organizations. The quantitative information gathered was to be compared to data gathered from the shapshot in-plant, cooler audits (see Phase II).

Members of the research teams also attended key industry meetings from January to June, 2006, to gather information on concerns of beef industry stakeholders and their customers.

Phase II included collection of quantitative data. This was done through visits to 16 packing plants (two times each) that provided a "snapshot" of beef quality defects and animal and carcass information. The information was obtained from 45,299 beef carcasses, selected at random and representing 10 percent of each production lot. Data was collected both on the slaughter floor and in the cooler, and were compared with quantitative data gathered in Phase I.

Collection of data was conducted June through September 2005 and March through June 2006. Data collecting teams were comprised of four to eight people, with trained persons responsible for recording Yield Grade and Quality Grade data and other information.

Plants were divided into four groups and evaluated by personnel from each of the four cooperating universities. To assure teams were consistent in evaluations, a practice session was held.

Phase III consisted of a **Strategy Workshop** to identify tactics needed to reduce or eliminate specific defects, and to identify quality challenges on which BQA educational efforts could be focused. The final day of the workshop was devoted to rating and ranking the individual issues discussed. Through this rating and the other strategy workshop findings, local, state, regional and national BQA educational bodies could identify the appropriate focus for the next five years.

What Was Found

Phase I

The information obtained from seedstock and cow/calf operators, stocker/backgrounders and feeders via questionnaires helped provide information on the top-10 quality problems the industry faces, and the changes that have been made in the last 15 years in management practices. Information from packers, purveyors, foodservice operators, restaurateurs and supermarket operators also provided the same information from the perspective of the customer, the marketer and the end-user.

Among the successes found in the 2005 Audit, based on the interviews of both end-users and the producers themselves, were improved microbiological safety of beef, improved cattle genetics, fewer injection-site lesions and beef of higher quality (Tables 3 and 4).

Of particular interest was the emphasis in 2005 on the reactions of foreign buyers of U.S. beef. These customers have come to have a high opinion of — and have high expectations from — the product. Among these foreign buyers 70 percent and 30 percent, respectively, consider its flavor "Excellent" or "Very Good," and 100 percent find its tenderness "Very Good." The Gold Standard for exported product is U.S. Prime.

"The National Beef Quality Audits of 1991, 1995 and 2000 have provided valuable industry benchmarks for use by beef industry stakeholders, and identified areas on which to place emphasis in local, state and national Beef Quality Assurance endeavors."
Dr. Gary C. Smith, Colorado State University

Table 3. **Genetics were at the top in both 2000 and 2005 NBQA when seedstock producers identified the changes they had made since 1991 to address quality challenges.**

2000 (n=262)	Quality Challenge	2005 (n=73)
1	Improved genetics (using performance)	1
3	Improved genetics (using physical traits)	2
6	Improved genetics (using ultrasound)	3
4	Increased record keeping	4
2	Changed injection-site location	5
9	Changed vaccination program	6
5	Improved genetics (using carcass traits)	7
NR	Joined alliance/supply chain	8
NR	Increased individual animal identification	9
7	Improved handling practices	10
8	Collected carcass data	NR
10	Maintained health/management data	NR

Table 4. **Packers in both the 2000 and 2005 NBQA said the greatest improvement the industry has made since 1991 has been in less frequency of injection-site lesions.**

2000 (n=29)	Greatest Improvement	2005 (n=6)
1	Presence of injection-site lesions	1T
NR	Food safety	1T
2	Carcass weights too light	3
9	Presence of bruises on carcasses	4T
NR	Liver condemnations	4T
3	Reduced grade/tenderness due to implants	
4	Inadequate muscling	
5	Too small ribeyes	
6	Hide damage due to parasites	
7	Carcass condemnations	
8	Excess fat cover	
10	Hide damage due to brands	

Room for Improvement

All segments buying cattle or beef still identify areas in which the quality of the product they receive can be improved. Although fewer injection-site lesions was identified as a key success story for 2005, it was still one of the top requests of suppliers among those within production sectors, along with improving genetic type of cattle. Among packers, quality challenges involve both tenderness and uniformity in the live cattle. In fact, the lack of uniformity in live cattle remains the item packers believe the industry has made the least improvement in since 1991 (Tables 5-9).

From 1989 through 2005 the percentage of steers and heifers officially graded increased from about 79 percent to 96 percent.

In both the 2000 and 2005 audits, genetics were a top issue when segments of the beef industry requested changes from their suppliers (Tables 5-7).

Table 5. **Changes Requested by Cow-Calf Producers**

2000 (n=262)	Quality Challenge	2005 (n=73)
1	Improve genetics (using performance)	1
3	Improve genetics (using carcass traits)	2
2	Improve genetics (using physical traits)	3
7	Increase record keeping	4
4	Improve genetics (using ultrasound)	5
6	Maintain health/management data	6
5	Collect carcass data	7
9	Increase individual animal identification	8
NR	Use genetic data	9
8	Change injection-site location	10
10	Change vaccination program	NR

Table 6. **Changes Requested by Stockers/Backgrounders**

2000 (n=262)	Quality Challenge	2005 (n=73)
1	Change the genetic type(s) of cattle	1
2	Change vaccination program	2
6	Maintain health/management data	3
9	Increase record keeping	4
7	Change injection-site location	5
10	Increase individual animal identification	6
5	Provide incentive for genetic superiority	7
4	Improve handling practices	8
3	Provide incentive for preconditioning	9
NR	Collect and use carcass data	10
8	Improve transportation practices	NR

Table 7. **Changes Requested by Feedlot Operators**

2000 (n=262)	Quality Challenge	2005 (n=73)
1	Change genetic type(s) of cattle	1
2	Change vaccination program	2
4	Provide incentive for preconditioning	3
3	Improve handling practices	4
6	Maintain health/management data	5
5	Change injection-site location	6T
8	Increase record keeping	6T
7	Improve transportation practices	8T
NR	Increase animal identification	8T
9	Provide incentive for genetic superiority	10
10	Collect and use carcass data	NR

Tenderness and implants jumped in importance as a Quality Challenge for Packers in 2005 (Table 8), while the lack of uniformity and heavy carcass weights were areas in which they believed the industry has not made enough progress since 1991 (Table 9).

Table 8. **Top "Greatest Quality Challenges," identified by Packers.**

2000 (n=29)	Quality Challenge	2005 (n=6)
6	Reduced grade/tenderness due to implants	1
1	Lack of uniformity in live cattle	2
2	Carcass weights too heavy	3T
10	Yield Grades too high	3T
9	Presence of bruises on carcasses	5T
NR	Hide damage due to brands	5T
3	Excess fat cover	
4	Inadequate tenderness	
5	Insufficient marbling/quality grades too low	
7	Food safety	
8	Low cutability	

Table 9. **Top "Greatest Quality Challenges," identified by Packers, for which the industry has made the least improvement since 1991.**

2000 (n=29)	Quality Challenge	2005 (n=6)
1	Lack of uniformity in live cattle	1T
2	Carcass weights too heavy	1T
3	Yield Grades too high	3T
10	Reduced grade/tenderness due to implants	3T
5	Insufficient marbling/quality grades too low	5T
6	Inadequate tenderness	5T
7	Liver condemnations	5T
8	Hide damage due to brands	5T
NR	Presence of bruises on carcasses	5T
4	Hide damage due to parasites	NR
9	Hide damage due to mud/manure	NR

The number of carcasses in Certified Branded Beef programs was less than 1 million in 1994, but rose significantly to 4.6 million in 2004.

Purveyors, retailers and restaurateurs all said *E. coli* O157:H7 was an issue to their customers/consumers, but restaurateurs ranked "Hormone Residues" as of higher importance to their patrons (Table 10). However, these audiences (in aggregate) ranked marbling as the Greatest Quality Challenge (Table 11).

"Previous NBQAs have identified Strategies, Tactics and Goals as vision directives for those in production agriculture. These directives are used by those who wish to be more competitive and find marketing options in both the domestic and international markets."
Dr. Tom Field, Colorado State University

Table 10. **Greatest Quality Challenges: Responses of Purveyors, Retailers and Restaurateurs.**

	Rank Purveyor	Rank Retailer	Rank Restaurateur
E. coli O157:H7	1 tie	1 tie	2
Salmonella	7 tie	8 tie	3
Hormone Residues	4 tie	3 tie	1
Antibiotic Residues	3	3 tie	4
Listeria Monocytogenes	7 tie	8 tie	5 tie
Price	4 tie	8 tie	NR
Desire For Traceback	4 tie	3 tie	5 tie
Desire For Natural Products	1 tie	1 tie	7 tie
Desire For Organic Products	7 tie	7	7 tie
Concerns About Animal Welfare	7 tie	3 tie	7 tie
Concerns About Environment	7 tie	8 tie	10 tie
BSE	NR	NR	10 tie
USDA Consistency	NR	NR	10 tie

Table 11. **Greatest Quality Challenges: Aggregated responses of Purveyors, Retailers and Restaurateurs.**

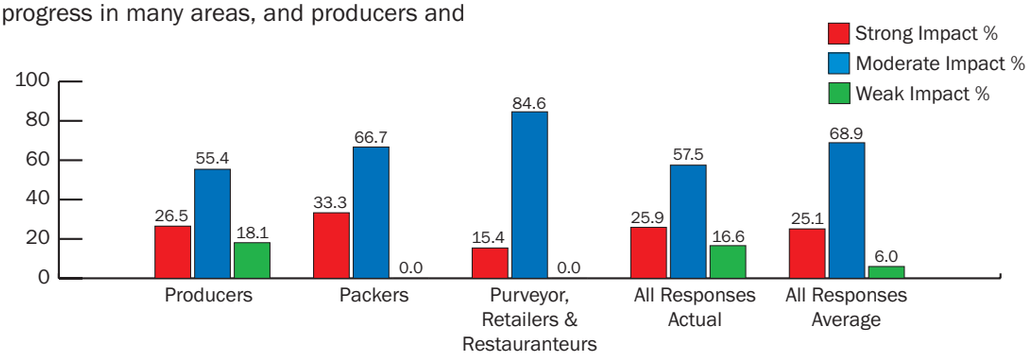
	Rank
Insufficient Marbling	1
Cut Weights too Heavy	2
Lack of Uniformity in Cuts	3
Inadequate Tenderness	4
Excess Fat Cover	5
Inadequate Juiciness	6
Inadequate Flavor	7
Inadequate Overall Palatability	8
Low Cutability	9
Too Large Ribeyes	10

Purveyors, retailers and restaurateurs identified their own concerns, as expressed by their customers. They also provided their own ranking of the top-10 "Greatest Quality Challenges" facing the industry (Tables 10-11).

For instance, there are barriers to increased beef exports, the Audit found. The top five quality concerns of those who trade internationally are 1) Unknown Source and Age, 2) Size and Weight Variability, 3) Insufficient Marbling, 4) Dull and Dark Lean Color, and 5) Administration of Growth-Promoting Implants. Nevertheless, the industry has made strong progress in many areas, and producers and their customers recognize this. The 2005 Audit found that nearly 82 percent of producers (seedstock operators, cow/calf operators, stockers/backgrounders and feeders) believe that the NBQA had either a "strong" or "moderate" impact on changes made in the industry since 1991.

Packers and end-users (retailers and foodservice professionals) were even stronger in their belief that NBQA had some effect on changes being made by producers. Every packer and end-user surveyed said the impact was either "strong" or "moderate" (Graph 1).

Graph 1. **Impressions of all segments of the beef industry are that the National Beef Quality Audits have had an impact on the beef quality changes made since 1991.**



Carcass and Grade Changes

It is not possible to determine actual percentages of carcasses from U.S. fed-cattle that qualify for specific Quality Grades or Yield Grades, according to Dr. Gary C. Smith, Colorado State University. This is because not all carcasses are presented for grading.

Smith says long-term trends of how many carcasses are in each Quality Grade and/or Yield Grade can only be estimated for that reason, as well as because no Consist Study has been completed since 1974. Furthermore, while the willingness to present certain carcasses for official grading has increased dramatically in the past 30 years it still isn't known what proportion of the total fed carcasses this willingness represents.

Of note is the USDA change of the grade name from "Good" to "Select" in 1987. While there was no market for Good carcasses, when Select was introduced, a market for the beef quickly developed and more carcasses were presented for grading. Another trend was the increase in the fed cattle that are sold by cattle feeders to packers in transactions that require all carcasses in the group (i.e. "in-the-beef," "grade-and-yield," "on the grid") to be Quality Graded and Yield Graded.

Looking simply at USDA percentages of fed-cattle carcasses in each USDA Quality Grade for 1975 vs. 2004 suggests that percentages of carcasses grading Prime or Choice have decreased over time. However, in 1975 only 30 percent of the carcasses that would have graded Select were actually graded (then Good) with the rest sold as "No Rolls," while today almost all Select carcasses are graded. Adjusting for this presents a clearer picture of what is happening (Table 12).

When Select replaced Good as an official Quality Grade, a market for this beef quickly developed among consumers.

Table 12. **Not all beef carcasses are officially graded by USDA, but changing the denominator to account for the total population can provide a more reasonable figure.**

	Officially Graded		Apparent Change	Apparent change corrected for the proportion of the total population presented for grading
	1975	2004		
Prime	5%	3%	-2 pp*	-1 pp*
Choice	79%	57.5%	-21.5 pp	-6.2 pp
Good/Select	15%	39%	+24 pp	par
Standard	.07%	0.4%	-0.3 pp	-0.3 pp

Table 13. **Similarly, because not all carcasses in the total population are graded for yield, it isn't possible to precisely determine from USDA data the changes in Yield Grade percentages.**

	Officially Graded		Apparent Change	Consist Study	Officially Graded	Apparent Change
	1975	2004		1973-1974	2004	
Yield Grade 1	2%	10%	+8 pp*	4%	10%	+6 pp*
Yield Grade 2	31%	42%	+11 pp	26%	42%	+16 pp
Yield Grade 3	64%	41%	-23 pp	43%	41%	-2 pp
Yield Grade 4	3%	7%	+4 pp	21%	7%	-14 pp
Yield Grade 5	0.2%	0.3%	+0.1 pp	6%	0.8%	-5.2 pp

**pp = percentage points (not percentages).*

Table 14. **Questionnaires suggested that more than half of cattle are now sold "on the grid" or "in the beef," but that source- and age-verified cattle do not account for a large percentage of the total.**

	1995	2000	2004	2005 (YTD)
Companies reporting	3	4	6	6
Cattle reported (N)	11,957,337	17,745,679	15,274,933	11,793,285
Hot carcass wt (avg. lb)	740.0	698.3	800.7	748.9
Programs (avg. N)	1.33	3.33	6.00	6.25
Angus programs (avg. N)	0.67	2.00	2.50	3.00
Grade-based programs, not Angus (avg. N)	0.33	0.67	1.25	1.25
Natural/Grass-Fed programs (avg. N)	0.50	0.33	1.75	2.25
Purchased "on a grid" (%)	15.00	31.10	37.30	33.70
Purchased "in-the-beef" (%)	20.00	31.60	17.30	25.50
Source-verified (% of total)	0.40	0.30	1.10	1.50
Age-verified (% of total)	0.00	0.00	0.60	1.00

Perception of U.S. beef's flavor in foreign markets is rated either excellent or very good.

Table 15. **Companies reported a higher percentage of USDA Prime and Choice in 2005 than in 1995, but Yield Grades were similar, with higher percentages of Yield Grades 4 and 5.**

	1995	2000	2004	2005 (YTD)
A maturity (%)	97.8	98.2	85.8	86.1
B maturity (%)	2.2	1.8	14.1	13.9
Prime (%)	1.7	3.9	7.3	7.3
Choice (%)	57.0	60.2	60.9	62.3
Select (%)	37.5	32.3	27.2	25.5
Standard and lower (%)	3.7	3.6	4.6	4.9
Upper 2/3 Choice (%)	21.7	25.5	25.3	27.6
Lower 1/3 Choice (%)	35.3	34.7	35.6	34.7
Yield Grade 1 (%)	7.2	10.0	7.8	9.4
Yield Grade 2 (%)	44.1	42.5	35.6	37.6
Yield Grade 3 (%)	41.1	42.6	41.7	41.5
Yield Grade 4 (%)	7.4	4.3	12.9	9.9
Yield Grade 5 (%)	0.2	0.6	2.0	1.6

International Marketers Weigh In

Face-to-face interviews with those who export to foreign markets strongly suggests that foreign beef buyers have an affinity for U.S. beef. In fact, perception of U.S. beef flavor in foreign markets is rated either excellent or very good (70 percent and 30 percent, respectively), while U.S. beef tenderness is rated as very good (100 percent).

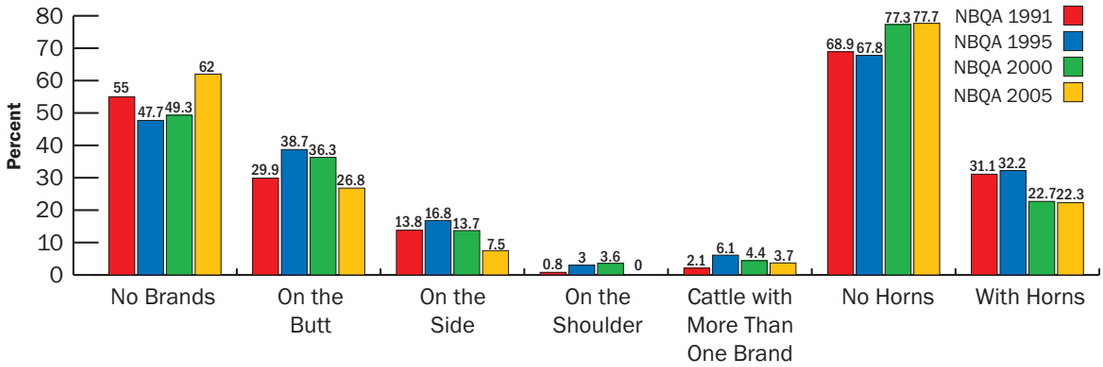
The global "Gold Standard" for U.S. beef is USDA Prime, and the lack of marbling is the second leading response to the question "What one quality attribute could U.S. cattlemen change to make it easier for you to export beef products?"

The leading response to that question is Source and Age Verification. Other top beef quality issues identified by companies that export to foreign countries are Size and Weight Variability, Dull and Dark Lean Color, and the Administration of Growth-Promoting Implants.

Phase II

Analyses in 16 packing plants provided data on brands, bruises, condemnations, and various animal, marbling and grading characteristics (Graphs 2-3, Tables 16-17).

Graph 2. **Fewer brands were noted in 2005 than in any of the previous NBQA, with no brands on the shoulder.**



Cattle producers have made headway in decreasing carcass bruises, the frequency of horns and the use of brands.

Table 16. **More carcasses had no bruises in the 2005 audit than in any of the previous ones.**

	NBQA – 1991	NBQA – 1995	NBQA – 2000	NBQA – 2005
Liver condemnations (%)	19.2	22.2	30.3	24.7
Lung condemnations (%)	5.1	5.0	13.8	11.5
Tripe condemnations (%)	3.5	11.0	11.6	11.6
Head condemnations (%)	1.1	0.9	6.2	6.0
Tongue condemnations (%)	2.7	3.8	7.0	9.7
Whole carcass condemnations (%)	0.0	0.1	0.1	0.0
Fetus incidence (%)	0.9	1.4	(3.8 in heifers)	0.6
No bruises (%)	60.8	51.6	53.3	64.8
One bruise (%)	25.0	30.9	30.9	25.8
Two bruises (%)	10.6	12.8	11.4	7.4
Three bruises (%)	3.5	3.7	3.5	1.6
Four bruises (%)	0.2	0.9	0.8	0.4
More than four bruises (%)	nd*	0.1	0.1	0.0
Bruised on the round	2.7	7.2	14.9	10.6
Bruised on the loin	23.4	41.1	25.9	32.6
Bruised on the rib	14.4	20.8	19.4	19.5
Bruised on the chuck	16.7	30.8	28.2	27.0
Bruised on the flank/ plate/brisket	0.2	0.0	11.6	10.3

*not determined

Table 17. **In-plant analyses provides a regular snapshot of the characteristics of the animals and their carcasses.**

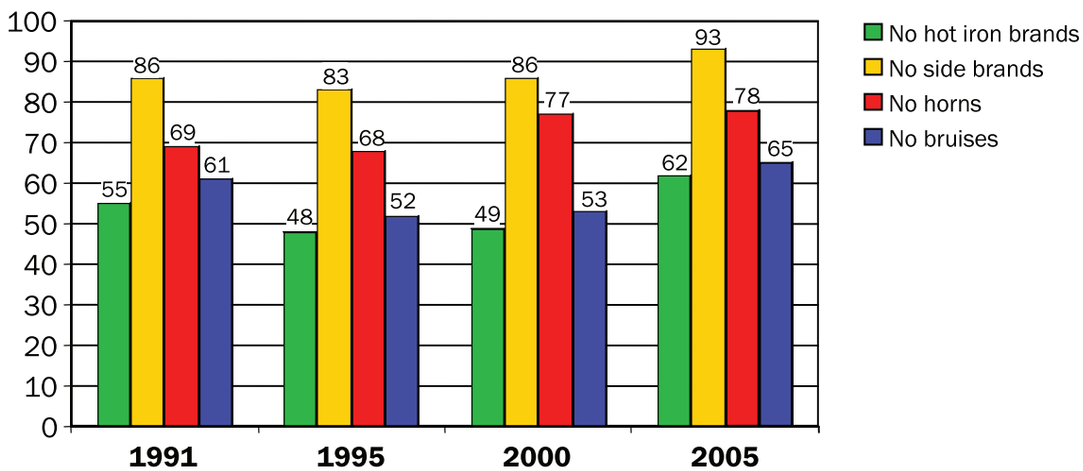
	NBQA – 1991	NBQA – 1995	NBQA – 2000	NBQA – 2005
Native type (%)	85.4	88.7	90.1	90.9
Dairy type (%)	7.3	4.8	6.9	8.3
Bos indicus (>4" hump) type (%)	7.3	6.5	3.0	0.8
Steer (%)	61.1	68.0	67.9	63.7
Heifer (%)	37.8	31.6	31.4	36.2
Bullock (%)	1.1	0.4	0.3	0.05
Cow (%)	nd*	nd	nd	0.05
Abundant (%)	0.1	0.0	0.2	0.05
Moderately Abundant (%)	0.5	0.3	0.5	0.4
Slightly Abundant (%)	1.8	1.1	1.6	2.6
Moderate (%)	5.5	3.2	4.8	5.0
Modest (%)	12.3	8.3	13.1	14.9
Small (%)	37.2	36.6	33.3	36.3
Slight (%)	36.6	46.9	43.3	38.2
Traces (%)	5.8	3.7	3.4	2.5
Practically Devoid (%)	0.3	0.1	0.0	0.05
A maturity (%)	93.0	95.1	96.6	97.1
B maturity (%)	6.7	4.3	2.5	1.7
C, D & E maturities (%)	0.3	0.6	0.9	1.2
Prime (%)	2.3	1.3	2.0	3.0
Upper 2/3 Choice (%)	17.1	11.5	17.3	19.3
Lower 1/3 Choice (%)	35.6	35.6	31.8	35.0
Select (%)	36.9	46.7	42.3	37.3
Standard (%)	7.6	4.6	5.6	4.1
Commercial & Lower Grades (%)	0.5	0.4	1.0	1.3

*not determined

When it comes to brands, bruises and horns, the in-plant audits show improvements have been made in all categories.

Predominant hide color identified in the in-plant audits also provided indication of leading breeds processed by the major packers.

Graph 3. **Comparison of Past Audits: Brands, Horns, and Bruises**



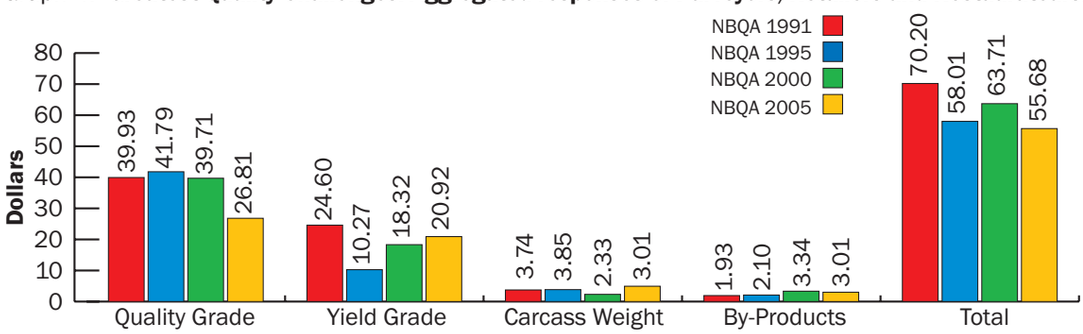
Nonconformity costs and lost opportunities due to quality grade, yield grade, weigh, hide and offal are less than during any of the previous Beef Quality Audits – but still significant, suggesting there is still room for improvement for cattle producers (Table 18).

Table 18. **The 2005 Audit has implications for gender and genetics when it comes to the grade of the carcass.**

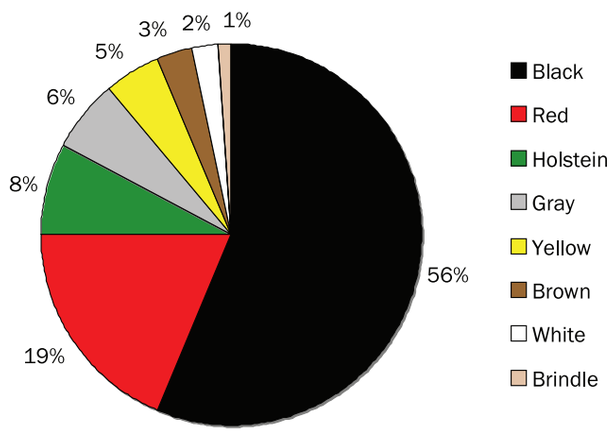
	Gender		Genetics		
	Steers	Heifers	Native	Dairy	*Bos indicus*
Prime (%)	3.2	2.5	2.1	12.9	0.0
Upper 2/3 Choice (%)	20.2	17.8	18.9	25.0	5.8
Lower 1/3 Choice (%)	35.2	35.1	35.3	34.0	23.4
Select (%)	36.9	37.9	38.2	25.0	57.6
Standard and Lower (%)	4.5	6.7	5.5	3.1	13.2
Yield Grade 1 (%)	16.1	16.6	15.8	22.7	20.3
Yield Grade 2 (%)	33.1	33.1	33.3	31.9	27.3
Yield Grade 3 (%)	37.3	34.8	35.9	41.2	46.3
Yield Grade 4 (%)	11.6	12.4	12.6	4.1	4.9
Yield Grade 5 (%)	1.9	3.1	2.4	0.1	1.2

While the U.S. beef industry has made significant strides in addressing key quality concerns with its product, significant opportunities continue to exist for even greater improvements.

Graph 4. **Greatest Quality Challenges: Aggregated responses of Purveyors, Retailers and Restaurateurs.**



Graph 5. **2005 Predominant Hide Color**



Phase III

In October 2005 a Strategy Workshop was convened in Oklahoma City, Okla. More than 30 key individuals developed presentations for the event, with the final day devoted to ranking individual issues. Through this process, quality challenges upon which local, state, regional and national BQA educational efforts should focus were developed.

The Strategy Workshop determined quality challenges upon which local, state, regional and national BQA educational efforts should focus their efforts in the coming years.

Common themes from the 2005 National Beef Quality Audit were:

- The U.S. must compete in a gobal market
- Safe food is an expectation for domestic and international customers
- We must have traceability for age/source/process verification
- We must move to instrument Yield and Quality grading
- There is great need for more producer education
- Cattle are too big, too fat and have too little marbling
- The beef chain is still segmented and disconnected from consumers
- The product delivered to the consumer is beef taste (flavor and tenderness)
- The keys to retail merchandising of beef are color and appearance
- End-product goals must be balanced with production goals

From the 2005 National Beef Quality Audit Strategy Workshop*

Deliver product attributes that meet consumer needs/expectations:

- For safety
- For taste
- For color
- For convenience

Improve the cattle supply by:

- Implementing instrument grading
- Reducing Yield Grade 4 & 5
- Decreasing variation
- Controlling weight
- Increasing marbling
- Maximizing profitability

Expand marketing opportunities in domestic and global markets by:

- Developing traceability systems
- Reducing costs and wastes in the beef value chain
- Verifying source and age
- Continuing new product development

Strengthen connection among segments of the beef chain via communication and targeted educational programs.

** As summarized by J.D. Tatum, Colorado State University*

BQA educational efforts, which focus on opportunities and challenges identified in NBQA-2005, should go a long way in helping the industry "Stay on Track."

Conclusions

Based on the results from the Audit's three phases, researchers in the 2005 National Beef Quality Audit identified the following as key to the success of improving quality and reducing non-conformity:

Industry Goals

- Clarify beef market signals that encourage production of cattle, carcasses and cuts that conform to industry targets.
- Foster communication and understanding among industry groups and segments of the beef supply chain.
- Move expeditiously toward source and age verification to build supply lines of cattle to fit domestic and export markets.
- Minimize production of excess fat.
- Strive for uniformity/consistency in cattle production.
- Consider tenderness in genetic and management decisions.
- Target weights that optimize profitability without creating productivity or product-desirability problems.
- Recognize the importance of marbling as a value-determining trait.
- Use results of instrument assessments of cattle, carcasses and cuts to make genetic and management decisions.
- Select management practices that increase value.

In keeping with the focus of the 2005 Audit to improve the educational capabilities of the Beef Quality Assurance program, the Beef Quality Assurance Advisory Board met in August 2006 and developed the following list of areas for BQA educational efforts that would help the industry "Stay on Track."

- Animal Health Product Use
- Care, Handling, and Transportation QA
- Marketing Opportunities
- Management practices to improve the safety, acceptability and quality of beef
- Record Keeping

The Beef Quality Assurance Code of Conduct

I received training in BQA and use it on my beef cattle enterprise because I have a commitment to consumers to produce the safest, highest quality beef in the world.

I use BQA production practices because maintaining an optimum environment for cattle to produce at their best promotes efficiency and quality at the same time.

BQA training has shown me that keeping records of all my production practices is the best way for me to reduce liability, provide quality assurance to my customers, and continue to ensure a safe beef supply through strict adherence to residue avoidance practices.

BQA has taught me to think about all of my production practices in light of their effect on the quality of the final product.

BQA is a combination of technology, common sense, a concern for animal well-being, and a consumer oriented production system.

Personnel: National Beef Quality Audit - 2005

Co-Principle Investigators:
Gary C. Smith
(Colorado State University)

Jeff W. Savell
(Texas A&M University)

J. Brad Morgan
(Oklahoma State University)

Ty E. Lawrence
(West Texas A&M University)

Co-Investigators:
Keith Belk
(Colorado State University)

Tom Field
(Colorado State University)

Lyda Garcia
(Texas A&M University)

Davey Griffin
(Texas A&M University)

Dan Hale
(Texas A&M University)

Travis Hoffman
(Colorado State University)

John Scanga
(Colorado State University)

Daryl Tatum
(Colorado State University)

Deb VanOverbeke
(Oklahoma State University)

Kristin Voges
(Texas A&M University)

NCBA Staff Coordinators:
Ryan Ruppert
Gary Cowman
John Braly
James O. Reagan

West Texas A&M University
In-Plant Auditors:
Brady Askew
Tyson Brown
Lacey Evans
Russell Farrow
Jill Gladden
Tyler Hawthorne
Kari Miller
Filogomes Neto
Tyrel Templar

Oklahoma State University
In-Plant Auditors:
Ryan Brady
Corey Charmasson
Claudia Cerruto-Noya
Jeri Donnell
Scott Grumbles
Tyler Hickman
Jake McKeever
Megan McMichael
Jerrod Moody
Dennis Price
Lilie Ramos
Micca Sullivan
Tim Sullivan

Texas A&M University
In-Plant Auditors:
Jason Bagley
Keri Bagley
Bridget Baird
Danielle Espitia
Brad Kim
Meagan Laster
Carrie Mason
Eric Metteauer
Stacy Mueller
John David Nicholson
LeeAnn Sitka
Robby Smith

Colorado State University
In-Plant Auditors:
Eddie Behrends
Mitch Bowling
Brandon Carlson
Tanner Carpenter
Sandra Gruber
Courtney Heller
David Jacobs
Kenichi Katoh
Jenifer Lacey
Tanner Machado
Chancie Moore
Kallen Moore
Ryan Murphy
Pablo Rovira
Brad Schneider
Catie Simpson
Dale Woerner

Funded by The Beef Checkoff

For more information contact:

National Cattlemen's Beef Association

9110 East Nichols Avenue
Centennial, Colorado 80112
303.694.0305